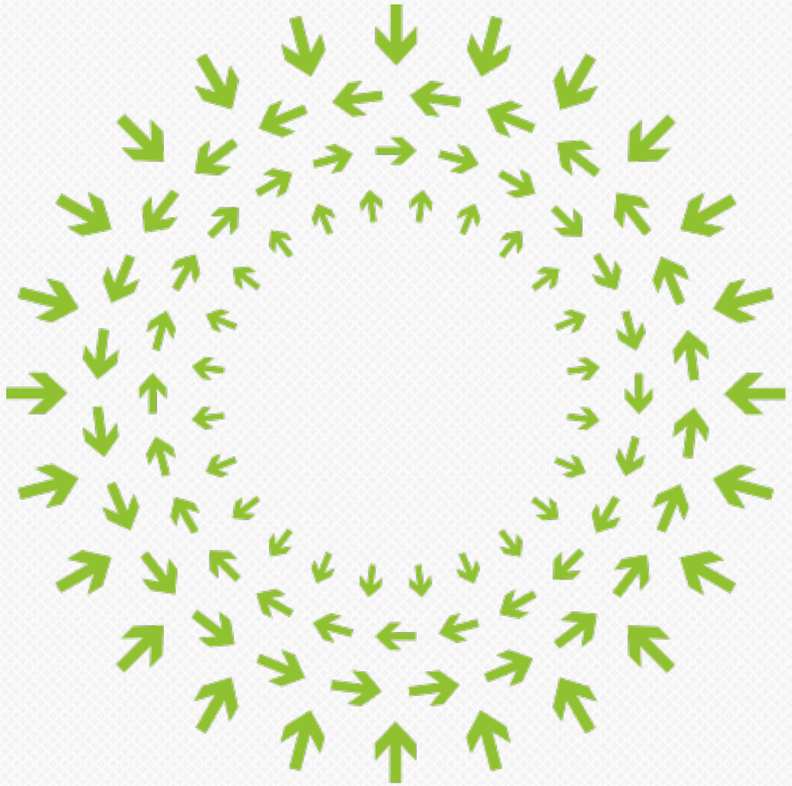


OPEN Compute Summit

Engineering Workshop

October 30-31, 2014

Paris

Object Drives

A New Architectural Positioning?

Mark Carlson

Toshiba

Principal Engineer, Industry Standards

What are Object Drives?

Interface changed from SCSI protocol based to IP protocol (TCP/IP, HTTP) based

Channel (FC/SAS/SATA) interconnect moves to Ethernet network

Key/Value semantics (Object store)

Hosted software in some cases

What is driving the market for these devices?

A number of scale out storage solutions expand by adding identical storage nodes incrementally

- Typically use an Ethernet interface and may be connected directly to the internet.

Open source examples include:

- Hadoop's HDFS
- CEPH
- Swift (OpenStack object storage)

Commercial examples also exist

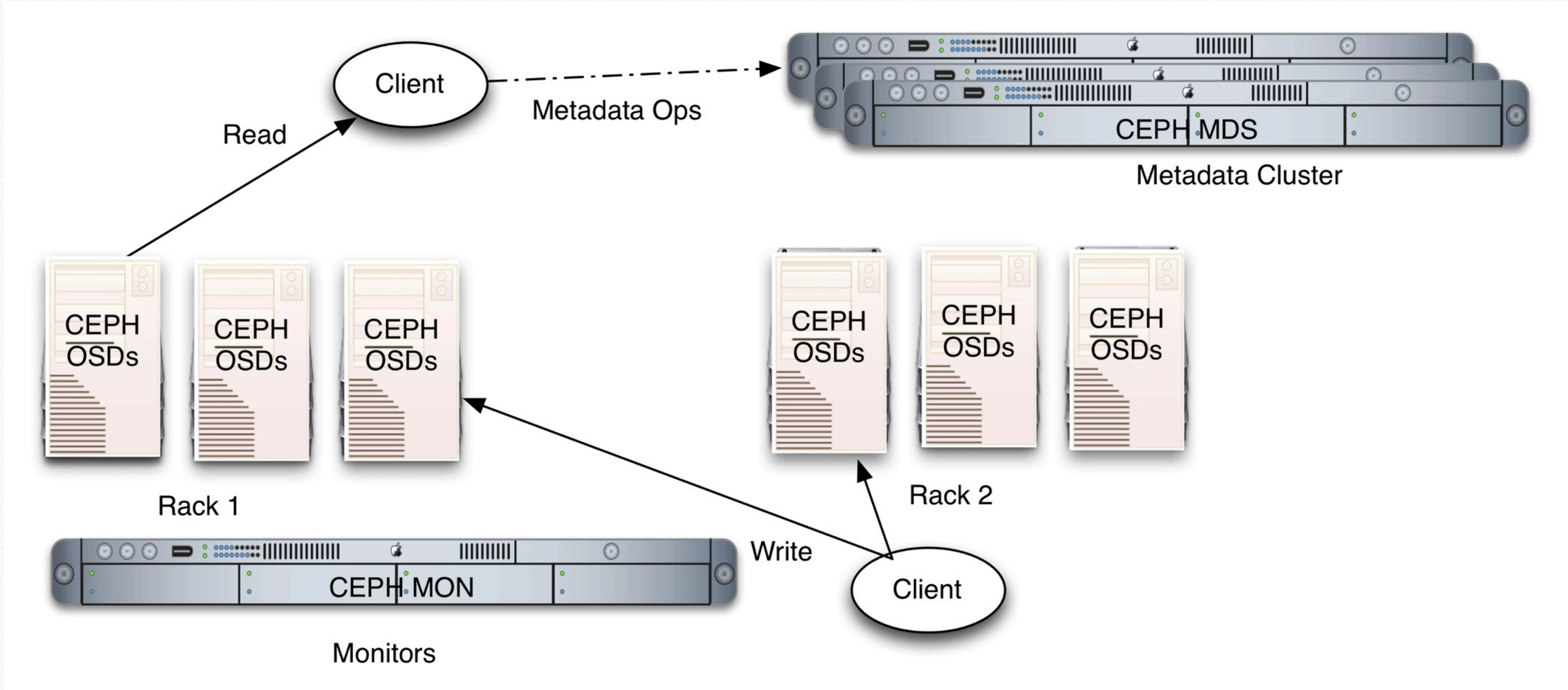
Current Solutions

For these solutions, typically a white box server is used for a storage node with DAS storage, CPU, memory, networking

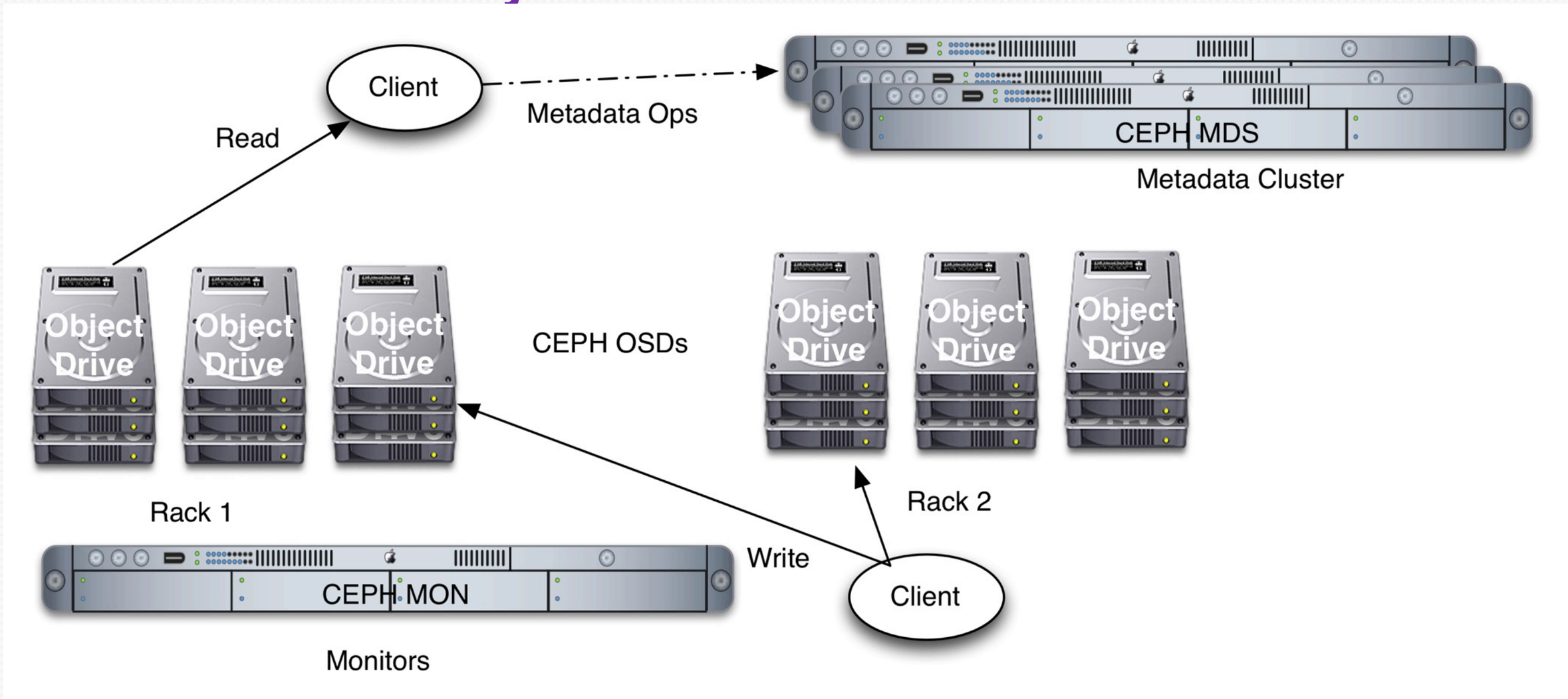
This generalized solution for this specific use case is inefficient, power hungry and adds to management complexity

Although inexpensive, this does not reduce long term ownership costs

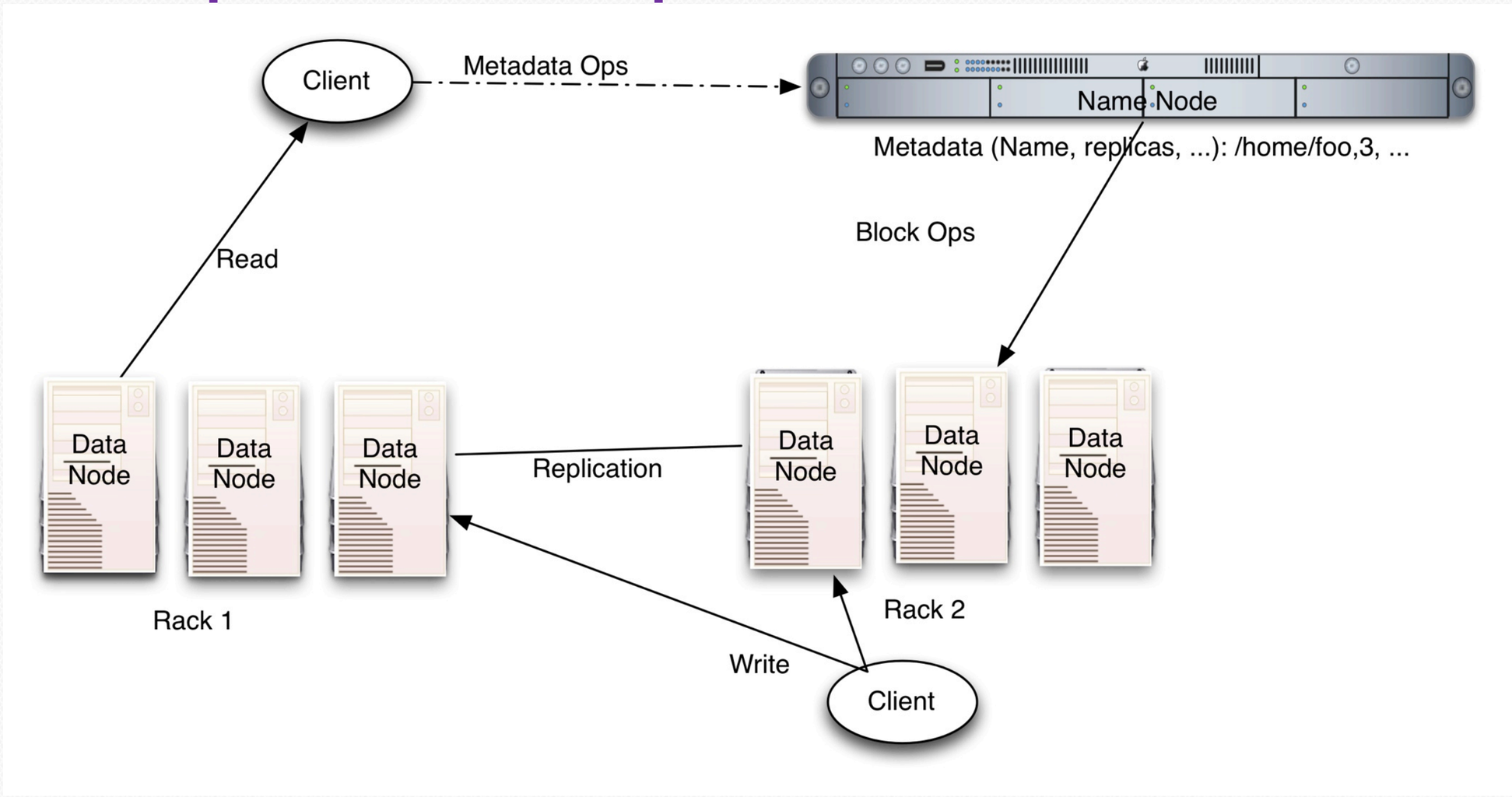
Example: CEPH Architecture



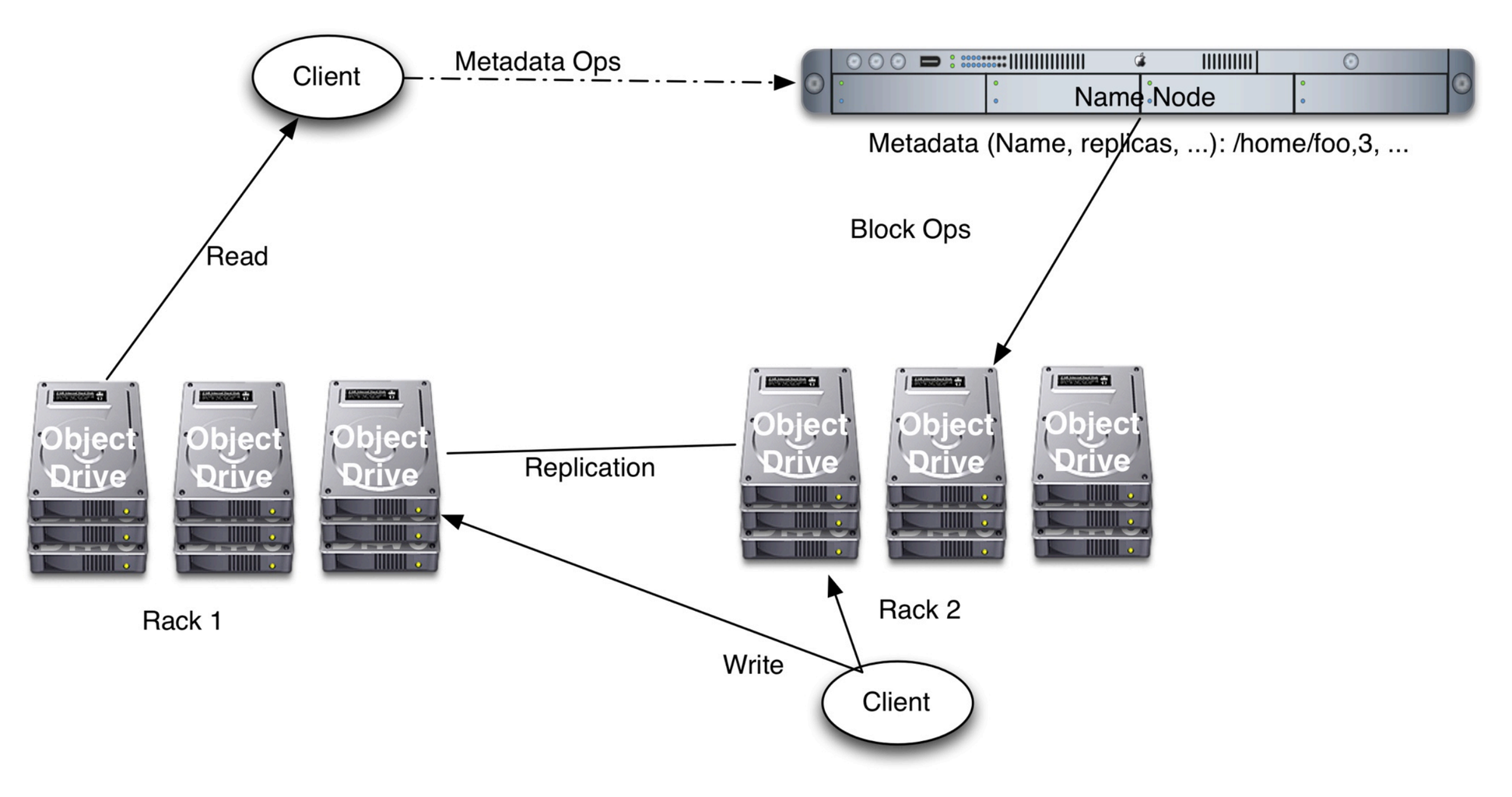
CEPH with Object Drives



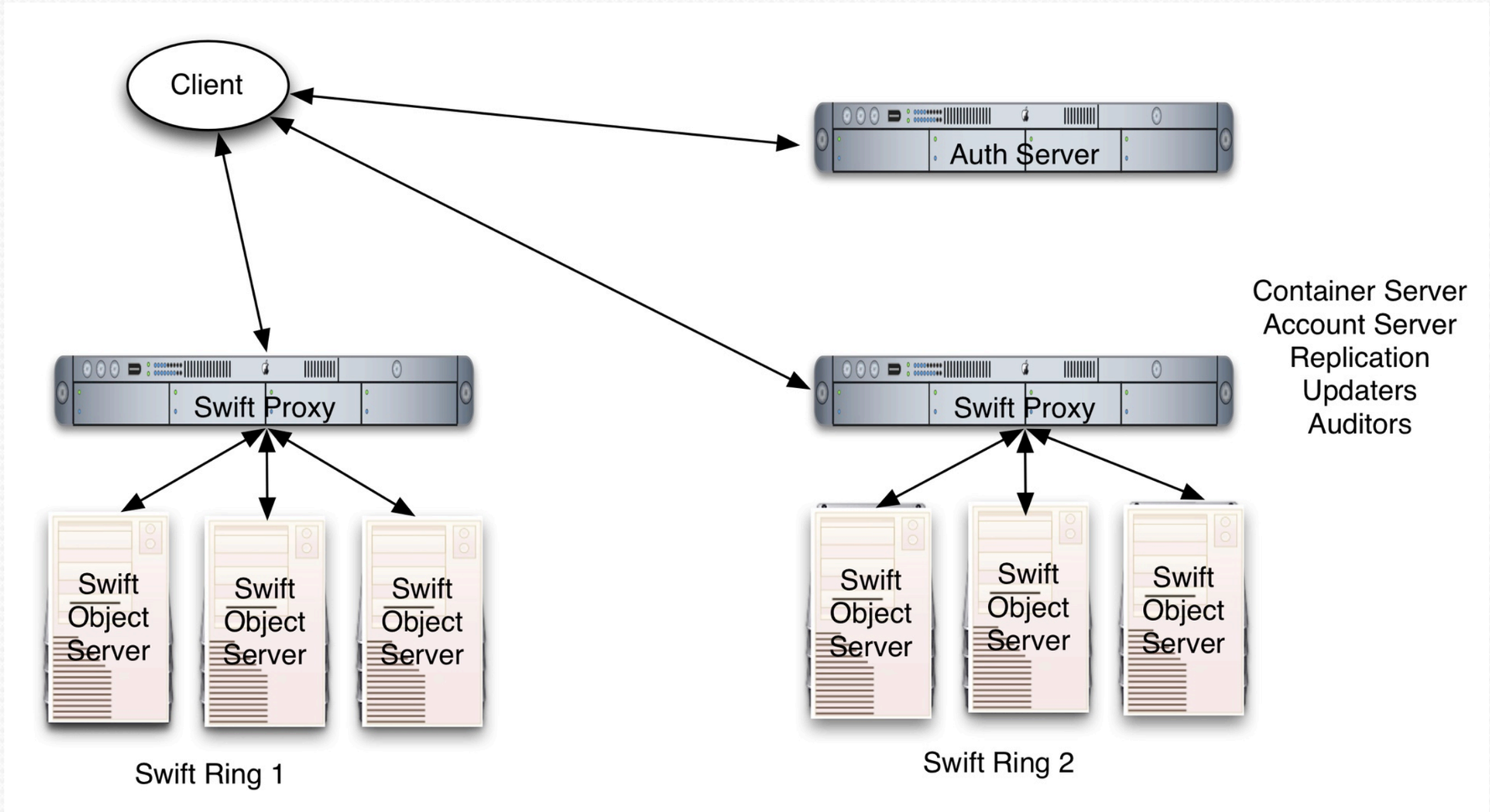
Example: Hadoop Architecture



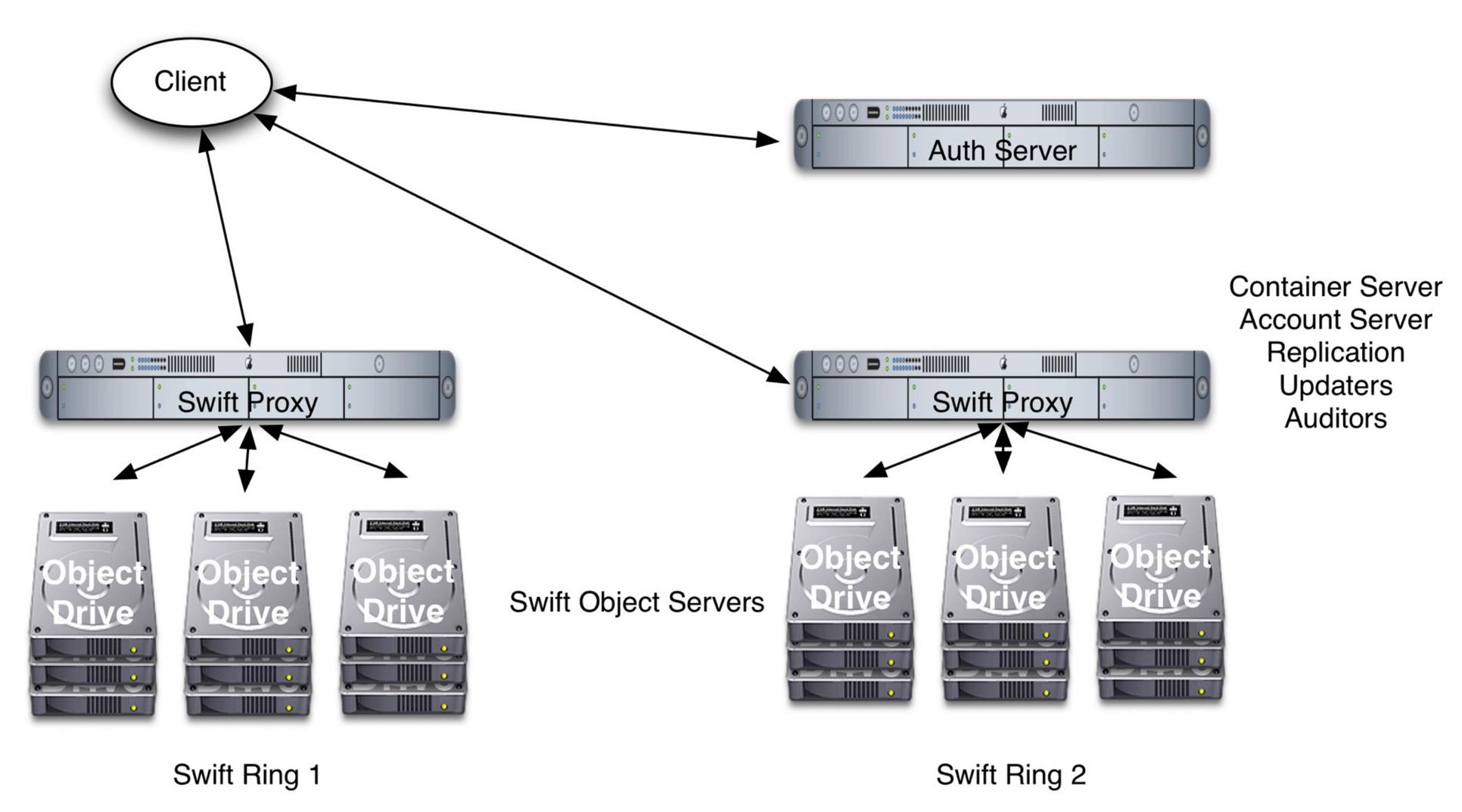
Hadoop with Object Drives



Example: Swift Architecture



Swift with Object Drives



What is needed?

With a new market segment like this, if every vendor pursues their own interface and integration with Client software, the entire market takes a slow path to adoption

By standardizing the points of interoperability, drive manufacturers second source each other, reducing the risk for clients to adopt

SNIA has a good history of solving this by creating consensus standards

What is the solution?

A new Technical Working Groups (TWG) has been formed to create a specification defining these points of interoperability

- Object Store spec (Key/Value)
- Drive hosted software

Composed of stakeholders from both drive manufacturers and scale out storage software

Discussion

What about storage system vendors?

Is this a new partitioning for Software Defined Storage?

What are the requirements for drive firmware and computing resources?

Is it too early to standardize?

Other issues?

Next steps

Join the Object Drive TWG

https://members.snia.org/apps/org/workgroup/objecttwg/

Decide who will participate in the TWG

- Roles: chair, editor, etc.

Scale out storage software vendors: what are your requirements for this work?

First face to face (kickoff) at November SNIA Technical Symposium

http://www.snia.org/events/technicalsymposium

Thank You